MERALGIA PARESTHETICA (ROTH), WITH THE REPORT OF TEN CASES.[1]

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In 1895, Bernhardt, in a paper published in the *Neurologisches Centralblatt,* recorded a number of cases presenting a curious symptom to which at that time attention had not hitherto been directed. This consisted of a disturbance of sensation in a small oval area on the outer side of the thigh. It usually affected one leg, was characterized by burning, tingling, numbness or distinct subjective pain, and the presence of more or less disturbance of sensation—usually a diminution of one or more of the forms. Bernhardt had noticed this condition some years earlier and had reported a case that occurred in a young man suffering from bilateral ulnar neuritis, and several cases that had developed during convalescence from typhoid fever, but he had not at that time recognized the condition as an independent disease. One of our own cases and several published by other writers, Pieraccini, and others, were observed and noted before Bernhardt's first publication on this subject, but like his first case were not described as distinct morbid entities. A few months later, Roth published, in a separate monograph which he had previously read before a Russian medical society, the records of 15 cases. He named the condition meralgia paresthetica, and gave an analysis of the symptomatology to which little that is essential can be added. Since then, a number of cases has been reported by various writers.

We have been able to collect from the literature 89 cases. Sabrazes and Cabannes have collected 62, but as it is impossible to verify this number by the analysis of their paper, it is probable that some which were used in the compilation of their statistics were not described. It is not unlikely that a number of other cases have escaped our observation, for it is remarkable in what out-of-the-way journals they are usually reported. Freund, and Näcke agrees with him, believes that the disease is more common than this paucity of reports would indicate, and states that his colleagues, Rosenberg, Breuer, and Wandsbecker have, in conversation with him, cited cases that they had personally observed, but had not published; but Traugott argues that the number of cases reported is remarkably few, and a man with such an extensive experience as Osler has never seen a typical case. Meralgia paresthetica has attracted considerable attention among neurologists and even general clinicians, and the symptoms are frequently so intense as to disable the patient and oblige him to seek medical advice. It therefore seems probable to us that it is not a very common disease. Many continually on the watch for it never see a case, and the number recorded in the four years since Bernhardt's original publication is comparatively very small. It must be noted, moreover, that in the majority of papers, a single case only is described, and many of them are by men with large opportunities for clinical observation. As these men are familiar with the condition, one would expect them to have collected more cases and to have put them on record. We desire to add the records of the following cases to those already published.

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[1] Read before the Philadelphia Neurological Society.

Case I. R. A. M., male, 28, was admitted to the Presbyterian Hospital, October 30, 1898. The patient had been in the volunteer service of the United States, and had remained in one of the camps on American soil. Upon admission, the symptoms of typhoid fever were present; the Widal reaction was positive; the diazo reaction negative. In twelve days the temperature became normal. Three weeks later, he had severe vertigo, nausea and vomiting; he rapidly became intensely jaundiced, and there was pain in the right hypogastrium with diminution of liver dullness. Ten days after the initial symptoms, he had a severe chill, and developed facial erysipelas. Eleven days later, when the convalescence appeared to be established, he complained of tingling and numbness of the outer sides of both thighs. This became more and more severe, causing considerable discomfort and obliging him to keep quiet. Examination, a few days later, revealed an area of anesthesia on the right thigh extending on a line drawn from the external trochanter to the head of the fibula, from the ninth to the thirty-seventh centimeter mark. The area was about 2 cm. broad above, 10 cm. broad in the middle, and 5 cm. broad below Tactile, pain, temperature, and hair sensations were very markedly diminished in this area, but not abolished. These changes extended, gradually diminishing, for about 2 cm., into the surrounding skin. The sense of localization was imperfect, the error sometimes amounting to 5 cm. Localization was also impaired, but to a less degree, in the rest of the leg. Just below the anterior superior spine of the ilium, pressure caused sharp pain. On the left thigh, the area extended from the 6th to the 37th centimeter mark, and faded to nothing below. The disturbances of sensation were much the same, but the patient declared that they were subjectively less. Pressure just beneath the left anterior superior spine of the ilium caused severe pain. The patient had been obliged to wear a heavy belt, which possibly had sunk down and pressed upon the external cutaneous nerves. Absolutely no subjective sensation had been caused by this, and it was not until the 77th day of his sickness, counting from the time that he was unfit for duty in the military camp, that any pain was noted in the region of the thigh. The subjective sensations consisted of pain and numbness, more pronounced after exertion, and therefore towards evening. After the application of faradic electricity, the subjective sensations increased for a brief interval, and then became very much less. This treatment was regularly instituted, and caused rapid improvement; the duration of the symptoms being about four weeks. There was no neuropathic nor gouty trace in his family history.

Case II. J. K., male, 30, a clerk, is a man of regular habits, who has smoked to excess in early life, but denies alcoholism and venereal disease or excess. He is accustomed to considerable exercise, chiefly indoors. In 1895, he had a severe attack of diphtheria. About one year ago, he began to suffer with a curious sensation on the outer side of the right thigh. An area was found extending from the 8th to the 36th centimeter mark; 3 cm. broad above and of equal width throughout. In this area, touch, pain, temperature, and localization sensations were greatly diminished. In the corresponding area of the left thigh they appeared to be normal. The faradic current is not felt in this region, even when so strong as to be unbearable in any other part of the body. Curiously enough, sensation to the faradic current is also blunted on the left thigh, and there is a small area, corresponding to the central part of the area on the right side, where it is not felt. Pressure beneath the anterior superior spine of the ilium is not painful. Surrounding the anesthetic area is a zone in which the sensory disturbances are less pronounced. The subjective sensations are numbness, tingling, and pricking. They are not severe, but appear to be rendered worse by wet weather, and after exercise. There is no history of injury, the symptoms appearing to have developed gradually. The patient is somewhat hypochondriacal; his father was eccentric, and indulged to excess in alcohol during the later years of his life. He had a habit spasm of the hand. During his adult life he suffered from time to time with paroxysms of numbness and tingling in the outer sides of the thighs, that would be so severe that he was disabled for several days at a time. These paroxysms were usually associated with exacerbation of gout.

Case III. J. A., a distinguished jurist, 76 years of age, a man of unusual intellectual ability. He was emotional, but did not use alcohol nor tobacco to excess. His appetite was large and he indulged it freely. He suffered with dyspepsia, and had repeated attacks of gout and eczema. About his 60th year, he began to suffer from pain and paresthesia on the outer aspect of the left thigh in the region of the distribution of the anterior crural nerve. At times, the hyperesthesia was so great that the mere contact of his clothing became unendurable, and he was obliged to stop walking in order to pull his garments from the skin. These paroxysms occurred irregularly, and were always very severe during stormy weather or after overwork. When examined in his 70th year, Heberden's nodes were present on the fingers; there was a systolic mitral murmur, and slight dilatation of the heart. Subsequently, he became senile, had attacks of despondency, and was quite hypochondriacal. *This patient was the maternal grandfather of the patient in Case II.*

Case IV. Miss L., 41, has had severe neuralgia for some years. She has also had neurasthenia, frequent attacks of gout, and dysmenorrhea. Her father, mother, and brother were also gouty. At her menstrual periods, she experiences an uncomfortable sensation on the outer aspect of both thighs. This consists of burning or numbness, and is associated with tenderness that persists during the intervals; the latter symptom is often quite severe. The paresthesias disappear with menstruation.

Case V. F. L., 24, complained in the second month of pregnancy of pain, numbness, tingling, and burning on the outer aspect of the left thigh. Her previous history is negative. She has suffered from various paresthesias in the hands and feet. Her father is living and in good health. Her mother suffers from melancholia, and is extremely gouty and neurotic. The symptoms continued until the termination of pregnancy, becoming so severe after the seventh month, that she was obliged to remain in bed. After delivery, the paresthesias became less severe, but are still present. The skin is not sensitive to touch, but pressure causes considerable pain.

Case VI. Miss L., 22, has had three attacks of acute vesicular eczema. On the fourth day of the third attack, she experienced a feeling of numbness, localized at a point 10 cm. above the head of the fibula on the outer side of the left thigh, that was relieved by a curious bursting sensation. This succession of symptoms occurred three times, and left a persistent feeling of numbness in an area 7 cm. by 11 cm. on the outer side of the left thigh, in which there is marked diminution of pain and tactile sensation. The left external cutaneous nerve is tender. The patient has had rheumatism, and is of neurotic temperament. She relates that for many years her father had persistent tenderness on the outer side of the left thigh, with paroxysms of pain that caused him sometimes to cry out as if struck. He died of tuberculosis. The mother has had neurasthenia in a severe form.

Case VII. Mrs. F. H., aged 23, had excruciating pains in the middle of the thighs, particularly on the outer aspect, which developed two hours before the occurrence of the signs of parturition. They disappeared after delivery, but recurred in a milder form at every menstrual period, and during a second pregnancy were constant throughout. In the involved areas, touch, temperature, muscle, and localization sensations were all good.

Case VIII. M. M., male, 50, has been obliged to do a great deal of walking during the past three or four years. He has noticed a peculiar sensation of coldness on the outer side of the right thigh in an area occupying the middle third. Occasionally, there are subjective sensations of tingling and numbness. The pains are worse at night and in cold weather; and exposure to cold invariably produces a severe attack. In the affected area, there is complete anesthesia and analgesia. A similar condition is also found in the left leg restricted to a smaller area. The nerve trunks are not tender. The patient complains, however, of occasional shooting pains in the legs, both knee-jerks are exaggerated, the Achilles tendon reflex is present, station is normal, and the pupils react sluggishly to light. In addition to the excessive walking, the patient had had, a short time previously, a severe attack of pneumonia. Later, after the disease was partially developed, he had a severe injury to the left leg followed by another attack of pneumonia. Two attacks of sciatica occurred after the appearance of the paresthetic symptoms. There is apparently no neuropathic family history.

Case IX. A distinguished physician of this city has suffered from a feeling of numbness and burning in the posterior aspect of the right thigh for years. At times he also has a sensation as if some wet object were in contact with the skin.

The symptoms followed a severe attack of influenza that occurred seven years ago.

Case X. M. F., male, white, about 60 years of age. The patient is an apparently healthy man, without neuropathic heredity, and without gouty tendencies. He has never indulged in stimulants to excess, and denies all constitutional diseases. His father died of old age; his mother had a stroke of apoplexy about the age of 50. Thirteen years ago, shortly after a severe attack of typhoid, he noticed from time to time attacks of peculiar sensation in the left thigh, characterized by a feeling of pricking with slight numbness. This occurred on the outer side of the thigh, and on the anterior surface just above the knee. The pain was never very severe, he was never obliged to rest on account of it, and it rarely lasted more than one-half a day. It was not increased by exercise or standing, and apparently not relieved by rest. Hot applications caused temporary amelioration. The attacks are usually more frequent in winter and somewhat more severe. As far as known, they are not brought on by excessive exertion, by exposure to cold, by heating, or by slight attacks of infectious disease At present, there are no objective disturbances, there is no tenderness upon pressure beneath the anterior superior spine of the ilium, there is no disturbance of tactile or localization sense in the thigh, but there are two distinct areas of hypalgesia; one 13 cm. by 5 cm. on the outer surface in about the middle—the other 9 cm. by 1 cm. in the median line just above the knee. These areas fade gradually into the surrounding skin where the sensation is normal.

Meralgia paresthetica is a disease that appears to be peculiar in its clinical manifestations from any of the ordinary forms of neuritis or neuralgia. The description of paresthesia of the region supplied by the external cutaneous nerve of the thigh is fairly accurate, but it omits any reference to another common and peculiar feature of the case, that is—the objective disturbance of sensibility. Perhaps as good a definition as any that could be given would be to call it *a disturbance of sensation on the external surface of the thigh, characterized by various forms of paresthesia, associated with dissociation and more or less diminution of sensation.* The earlier writers called attention to the fact that men were more frequently affected than women, and Stembo has recently again brought this fact into prominence. Our own statistics fully bear out this view. Altogether, including our own, we have been able to collect 99 cases, of which 75 were in men, 21 in women, and in 3 the sex was not given. In our own cases, however, this proportion was not maintained, 6 only being men, and 4 women. Two factors probably contribute to cause this marked disparity; first, the greater exposure to which the male sex is liable, the number of cases developing after traumatism being very considerable; second, the fact that women are far less likely to call attention to a symptom of this nature, partly on account of modesty, and partly because their occupations, being more sedentary, do not make the disease so disabling as it is in the other sex. The distribution of the symptoms is less arbitrary. In the great majority they occupy the region of distribution of the nerve. In several of Roth's cases, in Lop's case and in one of ours (Case X) there were disturbances in the anterior as well as the external surfaces of the thigh. In Escat's case, the inner sides of both thighs were also involved. In one reported by Nartowski, there were paresthesia in the leg and feet, as well as in the thigh, and Osler has reported three cases characterized by peculiar paresthetic symptoms in one or both legs which, however, did not present alterations in the outer side of the thigh. One of these cases was remarkable in that in some respects it resembled akinesia algera. It has been noted by several observers that when one side is involved, the corresponding region upon the other side shows more or less objective disturbance of sensation, particularly to the faradic current. In the majority of cases, unfortunately, it is probable that this symptom was not investigated. In one of our cases investigation of this point led to the discovery that the disease was really bilateral, that is to say, there were slight objective disturbances also upon the other side. Köster has also reported a similar case. In very few of the cases described as bilateral were the symptoms equally severe on both sides, and there appeared to be no difference as to which was more severely involved.

Why the external cutaneous femoral nerve should be the only one in which this peculiar syndrome occurs, has excited considerable speculation. Breuer was the first to suggest, in a verbal communication to Freund, that the anatomical relations of the nerve to the surrounding structures might have something to do with this, particularly on account of the superficial situation of the nerve, and its exposure, therefore, to injury. Since then, the majority of writers upon this subject have adopted this view and some have added to it that perhaps not only was the nerve exposed to traumatism, but the fascia, under certain circumstances, might press upon it and cause the anesthesia and the irritation. This would be particularly likely to occur if the nerve occupied a slightly anomalous position; as in Hegar's case, where it lay about 3 cm. from its usual situation. It does not seem to us, however, that this argument is entirely satisfactory. It is true that the external cutaneous femoral nerve occupies an exposed position, but so do many other nerves of the body, and nerves that are on the whole more liable to injury. Yet this syndrome practically is not observed anywhere else, excepting perhaps in the anterior crural nerve; the anterior form of meralgia paresthetica according to Roth; but very few cases of this condition are reported. The most typical cases are those of Féré and Möller. In the two cases in which histological examination of the nerve has been possible, evidences of change were present only in one, and pressure sufficient to cause the extreme symptoms in the other case (that of Souques) would almost certainly have produced degenerative changes in the nerve fibers. If this nerve were so particularly exposed, there is no reason why meralgia paresthetica should not be considerably more common than appears to be the case. It must be remembered moreover, that it has never been demonstrated that the fascia does or could press upon the nerve trunk; and it is therefore a pure assumption to regard this condition as a cause.

The etiology is indeed so various as to render us rather skeptical regarding the real causative factor of some of the agencies that have been mentioned. Among the predisposing causes, Stembo mentions a sedentary life. Shaw and others call attention to the frequency with which constipation occurs. It is mentioned of many of the patients that they were obese, that a rheumatic diathesis existed, or that they were addicted to alcohol; but in others none of these conditions existed. Bernhardt, in his original publication, called attention to the frequency with which various infectious diseases precede the development of the symptoms, the most common being, apparently, typhoid fever.

A case of the latter disease under our care, developed in the course of convalescence a curious symptom that may have some bearing upon this question. The patient, a girl of twenty, had had the disease in very severe form, with an almost equally severe relapse. Throughout the whole course of the case, the nervous symptoms had been very prominent. There was much delirium, exaggeration of the reflexes, flexion of the limbs, and pain when an attempt was made to extend them. During convalescence, she developed tender toes. The fever had disappeared, but while the patient was still very weak, she complained one day of paresthetic sensations on the outer side of the left thigh. Examination showed diminution of sensation in the usual area and exquisite tenderness over the trunk of the external cutaneous nerve, just below the anterior superior spine of the ilium. The next day, all the symptoms had disappeared, with the exception of the tenderness over the nerve trunk, which persisted for several days longer. It appears as if in this case there had been a transient peripheral neuritis of the nerve trunk of very mild form.

Among the other infectious diseases, syphilis has been noted as occuring as an antecedent condition in many cases, and Bacelli has reported two cases and Bernhardt and Pitres each one, in which locomotor ataxia was present; and Möbius has mentioned two cases with beginning general paresis. In one of Stembo's cases, traumatism seemed to play a prominent part. In several reported by Bernhardt and one by Devic, continuous irritation produced by the striking of the sword against the thigh, was held to be responsible. V. Lutzenberger believes that an old injury may predispose the nerve to inflammatory processes, and constitute it a *locus minoris resistentiae*, and that when this has occurred, an infectious process is likely to set up a neuritis. In his own case, this appeared to have been so, and in one of ours, there was much reason to believe that a heavy army belt had pressed down upon the anterior superior spines of the ilia, and wounded the nerve, and that later a succession of infectious processes was responsible for the development of the condition. Dopter has reported cases associated with other pathological conditions producing injury to the nerve, as Pott's disease, tumors, etc. Allied to traumatism is pregnancy, which is certainly responsible for more cases than have hitherto been recorded.

The importance of a neurotic predisposition has not been sufficiently investigated, but it appears that many of the cases have this characteristic. It is, of course, widely distributed, and it is difficult to say whether a greater proportion of cases with neuropathic heredity suffer from meralgia paresthetica than would occur in a number of persons taken at haphazard or not. It is certain that in women, the symptoms are usually worse during menstruation when the nervous system is distinctly more irritable. Until our own, no cases were reported in which a distinct hereditary influence could be traced. In Case II. the father of the patient had suffered for a number of years from exactly the same condition, and the maternal grandfather had also been a sufferer from the disease in his old age. This is a remarkable example of similar cumulative ancestral influence. The patient developed the symptoms much earlier than either his grandfather or his father had done. In Case VI. the father of the patient had also suffered from meralgia paresthetica for a number of years.

Finally, a number of cases have followed the application of hydrotherapy, cold douches to the back or legs being particularly likely to provoke the disease. This fact has been used to explain its occurrence after typhoid fever, but it does not appear that it is more frequent now than formerly, and the use of cold water in the treatment of this disease is much more prevalent than even in 1895. Venturi alone of all the writers on the subject has suggested the possibility of a cerebral origin of the disease, locating the lesion in the thermo-perceptive centers. In his two cases the alterations in the temperature sense were very pronounced.

The pathology is equally doubtful. One case has come to autopsy, and this is so important that it deserves a full description. The patient, 80 years of age, who was observed by Nawratski, was an inmate in the lunatic asylum. It is recorded that he had an objective diminution of touch and temperature sensation, with preservation of the pain sense in the affected area. At the autopsy, a spindle-form swelling was found in each nerve at the point where it crossed the crests of the ilia. In the region of these swellings, there were the changes characteristic of neuritis and perineuritis, and peculiar lesions that Nawratski considers to be the result of an old chronic interstitial neuritis. Secondary degeneration of the nerve fibers extended in both directions, but the degenerated fibers were more numerous in the peripheral than in the proximal portion of the nerve. The spinal cord was examined, and found to show slight sclerosis in the posterior columns, particularly on the left side. As a result of this examination, Nawratski accepts the mechanical theory, and believes that unilateral, or even bilateral involvement of the nerve occurs, which is usually the result of some old injury whose occurrence may perhaps be favored by the anomalous course of the nerve. In one other case, that of Warda, it was noted that the nerve trunk on the affected side was swollen and tender, and distinctly palpable. In none of our cases could the nerve be felt, and no other author has recorded a similar peculiarity.

Bernhardt, in his last publication on the subject, notes that in the majority of cases, there is tenderness on pressure just in front of and below the anterior superior spine of the ilium. Unfortunately, this symptom has been tested in only a few cases. Nartowski found it in one case out of five, Devic in his case, but Köster, Igelrans, and Pitres distinctly state that the nerve trunks were not tender. In two of our cases, in which they could be tested, a similar condition was present. In the case of typhoid fever with transient symptoms, they were distinctly tender, and remained so for some time, and in three no tenderness existed. Devic, to whose paper we believe sufficient attention has not hitherto been paid, was the first to suggest the occurrence of this symptom. He goes on to argue, however, that the absence of trophic changes is against the existence of a neuritis; and, in fact, eliminates destructive lesions of the nerve itself. He is also disinclined to regard the condition as neuralgic, on account of the absence of the typical neuralgic symptoms and the difference in the general character of the pain, and the very pronounced objective disturbances of sensation that are present. He suggests, therefore, the possibility of a periostitis of the femur, a suggestion that has not, and we believe correctly, received any favorable consideration. At any rate, in the absence of objective alterations in the nerve itself in the great majority of cases, and until a number of autopsies prove the contrary, we feel that Devic is justified in believing that a neuritis is not invariably present.

Extra-neural pathological conditions have occasionally been responsible for the condition. In one of Dopter's cases, a tumor pressed upon the nerve trunk. In another, a deformity of the spinal column, resulting from caries, compressed it. In both cases, partial degeneration of the nerve was found. In Souques' case, the resected portion of the nerve was examined carefully and found to be entirely normal.

Aside from the suggestions of Venturi and Devic, no writer has supposed that the symptoms were due to anything except a lesion of the external cutaneous nerve itself. Lop, however, mentions that in his case, the skin of the lower third of the thigh was red, purple, warm, rough, and that it could not be pinched into folds; there does not appear to have been edema of the foot. The sensory disturbances occupied the outer side and lower anterior third of the thigh, the same distribution found in Case X of our series, whose skin was perfectly normal. In Rapin's case, the skin in the analgesic region was abnormal to the extent of not assuming the goose-flesh appearance when cold was applied; the surrounding skin was normal. This is rather an evidence of nervous disturbance than of any lesion of the skin itself.

The symptoms of the disease are so variable that it is difficult to describe them. In the majority of cases during the early stages, there is tingling, increasing to positive pain, usually commencing when the patient is standing or walking, and continuing until he or she sits down and flexes the thigh upon the abdomen. In other cases, the patients complain of a sensation of numbness, or of cold, or of aching, or they may feel as if a wet cloth has been applied to the skin, and sometimes there is tenderness so exquisite that even the pressure of the clothing can not be borne, as in cases reported by Köster, Osler, and ourselves. The symptoms in the great majority of cases first appear after the patient has had the fascia lata tense for some time, and this leads to the theory, that the condition was due to pressure upon the nerve by this fascia; but in several cases the symptoms persisted when the patient was lying down, and sometimes were most severe at night. The objective disturbances are usually unequal diminution of various forms of sensation. The most profoundly affected are usually pain and electro-cutaneous sensation, then tactile sensation, thermic sensation, pressure and localization. In the early stages, however, there may be hyperalgesia, and often exquisite tenderness persists throughout the whole course of the disease. V. Lutzenberger, as a result of the analysis of his own case and that of Freund, reaches the conclusion that, in early stages, there is hyperalgesia with anesthesia to cold; in the late stages analgesia with anesthesia to heat; but this theory is not borne out by the examination of the other cases. Usually around the area most intensely affected, there is a zone through which the objective disturbances gradually diminish. The sciatic nerve is never tender. Sabrazes and Cabannes note that in sciatica, pain is increased by flexion of the thigh upon the abdomen, particularly if the leg is extended at the knee-joint, and that in meralgia, the reverse is the case, and in neuralgia of the anterior crural nerve, the nerve itself is often tender, and the pain spreads over the anterior and inner surface of the thigh.

Akinesia algera, or the allied condition apraxia algera, could only in rare instances cause any difficulty. In either, the absence of objective sensory disturbances, the irregular localization of the pain or paresthesia, and the presence of hysterical or degenerative stigmata should be sufficient to determine the true nature of the case.

The differential diagnosis from intermittent claudication, as described by Charcot, Goldflam, Bieganski, and others, is still more difficult. According to Charcot, in this condition, the patients, although perfectly comfortable when lying down, when they attempt to walk, develop a feeling of weight and discomfort in the leg which becomes slightly cyanosed and at times so painful that further locomotion is impossible. Charcot associated this condition with diabetes and arterial obstruction. Goldflam, who reported a number of cases, noted that it occurred usually late in life, and that when the attempt to walk was made, there rapidly developed a feeling of fatigue and then pain with paresthesia, chiefly in the leg and to a less extent in the thigh. The patients were nearly all cases of marked arterial sclerosis, and in many cases, the reflexes were exaggerated, and there was ankle-clonus. The distribution of the symptoms and the age at which they develop are the most important distinguishing characteristics.

The course of the disease is extremely variable. In some of the cases the symptoms persist for years, but exhibit considerable variation in intensity, in others they disappear after a few months. In a number of instances, recurrent attacks have been mentioned. As the majority of cases have not been observed for a sufficiently long period to enable us to control the results of treatment, very few cases of recovery have been recorded. Näcke, Köster and Souques have each reported one and we have reported another in which this occurred. In our case, however, the patient passed from observation about a month after the symptoms had disappeared, and it is impossible to be certain that the recovery was permanent. None of our other cases have shown any improvement, although in those brought on apparently by pregnancy, the symptoms diminished after delivery. Roth, Feund, and a number of others have secured more or less permanent improvement by treatment. Good reports a case with a typical relapse six years after the cessation of the previous attack, and Köster reports another in which the period was eight years. In the majority of cases, the symptoms are not persistent, but disappear during rest and increase during standing or exercise; but in some cases, the pain diminishes during walking. Nartowski reports a remarkable case in which the pain increased during sleep. In Ingelran's case, the symptoms appear to have been paroxysmal, but no cause could be assigned for their development, for the attacks were not altered either by rest or action. In many of the cases, exposure to cold, as in one reported by us, seems to have been of more importance than the mere act of walking. The prognosis must, therefore, be exceedingly grave for recovery or distinct amelioration. Of course the disease itself is of such trivial nature that even injurious action upon the general health of the patient could rarely be produced.

The treatment, in view of the almost uniformly bad results, is anything but satisfactory. When the disease was considered to be rheumatic in nature, salicylic acid was employed rather freely internally, and Dèvic used inunctions of this drug. Counter-irritation over the area almost invariably produced bad results, and was soon abandoned. Roth recommended, however, the application of faradic electricity, particularly in the form of the dry brush, and secured very excellent results by this means. In the case of ours which recovered, we employed this form of treatment exclusively, and after each application, the patient declared that he felt distinctly benefited. Massage has also been extensively used, but the reports of its employment are somewhat contradictory. When the symptoms are exceedingly severe, it is possible that operative interference would be justifiable, although in the absense of an accurate knowledge of the pathology of the condition, these measures should be delayed as long as possible. Spiller has declared himself in favor of resection when other means have failed, or, if milder measures are thought desirable, simply stretching of the nerve trunk.

Souques has recently reported a case in which this operation was performed, apparently with entire success. The patient, a girl of 21, had been obliged to stand and work hard for a number of years. On one occasion, after unusual fatigue, she noticed tingling and chilliness on the outer side of the left thigh, which was relieved by sitting or lying down. Fourteen days later the pain became very severe and finally required hypodermic injections of morphia. It was observed that the puncture of the needle was not painful and investigation then showed that there was complete anesthesia to all forms of sensation in an area extending from the trochanter to the knee. Later the paroxysms of pain became so severe that the patient was unable to work, and all other forms of treatment proving unavailing, several centimeters of the anterior crural nerve were resected. There was complete relief, but the disturbance of sensation persisted in the area of the distribution of the nerve. Histologically, the nerve trunk was normal.

An interesting case, that is probably of this nature, in which this treatment was employed, was reported by Hager as far back as 1885. A girl of 21 received a severe injury to the left hip while dancing. From that time she had continuous dull pain in the left hip and thigh, was able to walk very little, and suffered greatly in general health. There was marked tremor of the left leg when she attempted to lift it from the bed. Examination showed no apparent lesion, there was extreme hyperesthesia over the external surface of the left leg and a tender point 3 cm., outside the anterior superior spine of the ilium. An incision was made at this point, and an anomalous external cutaneous femoral nerve was found and resected. The patient was relieved of her subjective sensations, but there was complete anesthesia in the area of distribution of the nerve.

In all likelihood, the most important feature of any form of treatment would be the insistence upon absolute rest in bed for a considerable period of time, but few of the patients can be persuaded to submit to this.

If the attempt is made to classify meralgia paresthetica, it is found that there is considerable difficulty in including it under either the neuralgias or the neuritides. From the former, it differs by the fact that pain is usually a subordinate symptom and often not present; whereas, the various forms of paresthesia are of paramount importance. Moreover, it is exceedingly rare in any form of neuralgia to have the pronounced objective disturbances of sensation that are almost invariably present. From neuritis, it differs by the fact that the symptoms are usually persistent, and rarely progressive or retrogressive. The nerve trunk, aside from the tender point just beneath the spine of the ilium that is occasionally, but not frequently, present as Bernhardt contends, is not tender. Trophic changes never occur, and there is often pronounced dissociation of sensation, which is at least rare in neuritis. In many respects, however, it can be regarded as resembling the occupation neuroses, excepting that these are not limited to the distribution of any particular nerve. The abnormal sensations are usually brought on by effort and disappear upon rest. The condition is practically incurable, is often associated with overwork, as prolonged standing or walking, with the neuropathic diathesis, or it is occasionally hereditary. A patient of one of us, a young woman of 20, with severe writer's cramp, is the daughter of a man who has suffered for years from the same condition. Its similarity and differences from the intermittent claudication of Charcot and Goldflam have already been mentioned. If it were permissible to speak of a neurosis of a nerve, we believe that that would be the most fitting designation. At present, however, it is only possible to say, that it is a distinct morbid entity from the clinical standpoint, but that a variety of causes may, in different cases, be concerned in its production.

CASES OF MERALGIA PARESTHETICA.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
Bernhardt.						
1	m.	51	L.	Typhoid, striking of sword against leg.	?	Army officer.
2	m.	?	L.	Striking of sword against leg.	?	Army officer.
3	m.	56	L.	Cold douches.	4 yrs.	Tactile sense diminished.
4	m.	30	L.	Chronic lead poisoning.	?	Skin and underlying muscles tender, numbness.
5	m.	35	R.	None. Pedler; exposed to oppressive heat.		Numbness.
6	m.	34	R.	None. Blacksmith.	Few weeks.	Numbness.
7	f.	27	R.	Pregnancy.	?	No objective disturbances.
8	m.	50	L.	Syphilis, followed by locomotor ataxia.	?	Slight hypesthesia.
Wladimir Roth.						
9	m.	41	L.	Rough walking, cold.	8	All forms of sensation diminished.
10	m.	46	Bil.	Exposure to cold. Syphilis. Typhoid fever.	12	Tactile hypesthesia. Improved.
11	m.	44	Bil.	None.	2	Subjective hypesthesia only.
12	m.	55	Bil.	Influenza.	?	Subjective hypesthesia.
13	m.	41	?	None.	10	Paresthesia only.
14	m.	35	Bil.	Alcoholism.	4	Slight hyperesthesia. The affected area remains pale in hot bath.
15	m.	54	Bil.	Alcoholism, syphilis, infectious fevers, traumatism.	4	
16	m.	48	R.	Typhoid fever.	6	Slight manifestations.
17	m.	36	?	Exposure to cold.	12	Hypesthesia to all sensations.
18	f.	28	Bil.	Nervous, anæmic.	3	Subjective hypesthesia.
19	f.	41	R.	Eclampsia, epilepsy.	?	Previous attack years ago.
20	m.	43	R.	Syphilis, alcoholism.	8	No objective changes.
21	m.	45	L.	Exposure to cold.	15	Slight hypesthesia.
22	m.	35	R.	Rheumatism, alcoholism.	3	Pains preceded by a sense of cold and pricking.
Näcke.						
23	m.*	?	R.	Misstepped heavily on rt. foot. Pain 4 or 5 days later.	3 mo.	Recovery.
Freund.						
24	m.*	39	R.	Cold douches.	7	Improvement; symptoms extending downward.
25	m.	?	?	Syphilis.	?	Not a case of locomotor ataxia.
26	m.	50	Bil.	Emotional disturbance.	?	
27	f.	58	?	No cause given.		
Escat.						
28	m.*	31	Bil.	Long walking tour.	13 mo.	Increased by standing or exercise.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
Hirsch						
29	m.	50	?	Alcoholic, syphilitic. Local injury, exposure.	2 mo.	Burning pain. Diminution of the thermic sense.
Knauer.						
30	m.	36	L.	Striking of sword against thigh, fatigue, alcoholic.	12 yrs.	Delayed sensory perception. Hypesthesia, hypalgesia.
31	m.	43	R.	Alcoholic, long foot tours.	?	Feeling as if flesh were loose. Subjective sensation of cold. Sometimes increased by drinking.
32	f.	22	R.	Childbirth, typhoid fever, followed by multiple neuritis and paralysis of both legs.	4	Hypesthesia, hypalgesia.
33	m.	33	R.	Carried packages on the right side.	?	Diminution of patellar reflex. No disturbance of sensation, excepting slight hypesthesia.
Stembo.						
34	f.	25	L.	Repeated pregnancies.	3 mo.	Pain relieved by flexion of limb.
35	m.*	60	L.	Exposure in military service.	?	No tenderness over nerve.
36	m.	25	L.	No cause given.	1 yr.	Pain diminished by flexion. No tenderness over nerve.
37	m.	16	R.	No cause given.	2	Pain diminished by rest or rapid walking.
38	m.*	?	L.	Severe injury to knee.	2	General hypesthesia to all sensation including electricity. Slight hypesthesia in corresponding area of right leg.
v. Lutzenberger.						
39	m.*	?	?	Injury 5 years before symptoms developed.	3 weeks.	Tactile sensation normal; diminution of electro-cutaneous sensation.
Köster.						
40	m.	64	Bil.	Long standing in museum.	?	First attack in 1884. Relapse in 1892, when left leg was also involved. All forms of sensation diminished. No pain over nerve trunks.
Adler.						
41	m.	49	L.	Long standing.	1	Numbness.
Warda.						
42	m.	32	L.	Perityphlitis. Neurasthenia. Cold douches, bicycle riding.	3 mo.	Nerve trunk sensitive.
Shaw.						
43	m.	50	R.	?	10	Increased by standing. Period of almost complete remission. Slight symptoms on left side.
44	m.	50	R.	Syphilis, constipation.	3	Involved area has gradually increased. Headache, vertigo, disturbance of gait, bradycardia.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
45	f.	36	L.	Childbirth, constipation.	?	
46	f.	60	L.	No cause given.	?	
	Good.					
47	f.	young	L.	Exposure to wet.	?	Collapse after 6 years, hypesthesia, analgesia.
	Traugott.					
48	m.	60	R.	Prolonged standing.	20	Hypesthesia of all forms of sensation, including electro-cutaneous.
49	m.	55	L.	Gout, obesity. Prolonged walking.	1	Hypesthesia of all forms of sensation, including electro-cutaneous.
50	f.	49	L.	?	?	Hyperalgesia. Sensation otherwise normal. Sciatic not tender.
	v. Nartowski.					
51	m.	51	R.	Rheumatism.	26 yrs.	Hypesthesia to all forms of sensation, including electro-cutaneous. Nerve trunk slightly tender.
52	m.	45	L.	?	?	Hypesthesia of all forms of sensation, including electro-cutaneous. Pain increased by pressure, and during sleep.
53	f.	63	Bil.	Doubtful.	?	Hyperalgesia. Hypesthesia to all forms of sensation, including electro-cutaneous.
54	m.	53	Bil.	Syphilis. Symptoms followed an attack of pneumonia.	15	Symptoms extended to legs and feet. Localization and electro-cutaneous sensation diminished. Analgesia.
55	m.	48	Bil.	Cold baths, douches.	8	Pain, pressure, and tactile sense diminished. Electrical irritability of the muscles in this region diminished. Skin reflexes less.
	Nawratski.					
56	m.	80	Bil.	Doubtful.	?	Touch and temperature sense diminished. Autopsy.
	Spiller.					
57	m.	?	R.	?	1	Sensation normal.
	Devic.					
58	m.	?	?	Continual pressure against the thigh.	?	Sensation of moisture. Hypesthesia. Tenderness of the nerve trunks.
	Lucas-Champonniere.					
59	m.	?	?	No cause.	8	Symptoms have gradually increased. There is a feeling of congestion when standing.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
Bellot.						
60	f.	48	L.	Gout, varicose veins.	?	Hypesthesia.
Donath.						
61	m.	40	R.	Injury and exposure to draught.	7	Symptoms worse when walking or standing. All forms of sensation diminished. Distinct weakness of the right leg. No improvement.
Pieraccini.						
62	m.	50	L.	Vigorous. No neuropathic condition.	?	Pain increasing with walking.
63	f.	young	Bil.	No neuropathic condition.	?	Pain, severe enough to cause tears; brought on by walking.
64	f.	40	R.	Obese.	10	A feeling of numbness.
Ingelrans.						
65	m.	?	?	Gouty.	?	Subjective sensation of cold, not altered by rest or action. Hyperalgesia. Diminished heat perception. Nerve trunks not tender.
Dopter.						
66	m.	22	?	Alcoholic, psoriasis, urticaria, long marches.	12	Pain disappears upon resting. Loss of sensation to cold. Unequal pupils Electro-cutaneous sensation increased.
67	f.	40	L.	Varicose veins.	10	Pain produced by walking; disappears upon rest. Reappears in bed. No disturbance of sensation, excepting slight hypesthesia during paroxysms of pain.
68	m.	?	?	Pott's disease at the 2d lumbar vertebra, causing compression of the nerve.	?	1st symptom hypesthesia, followed by anesthesia without spontaneous pain.
69	m.	?	Bil.	Malignant tumor pressing upon nerve.	?	
Verhoogen.						
70	m.	34	?	Infantile paralysis.	4	Pain occurs during walking, disappears upon resting.
Bacelli.						
71	?	?	?	A prolonged walk.	?	
72	?	?	?	Symptoms preceded by locomotor ataxia.	?	
73	?	?	?	Symptoms preceded by locomotor ataxia.	?	
Pitres.						
74	m.	48	Bil.	Rheumatic. Influenza.	3	Hypesthesia, diabetes.
75	m.	32	L.	Syphilis, lightning pains.	12 days	Anesthesia developed suddenly, hypesthesia and hypalgesia. Nerves not tender. Knee-jerks present.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
76	m.	45	L.	Obese, migraine, intestinal colic.	2	Burning sensation brought on by walking. Nervous system otherwise intact.
Lop.						
77	m.	30	R.	Typhoid fever. Bilious hematuria.	1	Fulgurant pains. Walking only possible with aid. Areas of analgesia on external surface and lower anterior third. Hyperesthesia. Skin thickened and altered. Improvement.
Souques.						
78	f.	21	L.	Prolonged standing.	1	Anesthesia to all forms of sensation. Resection of nerve. Cure.
Claisse.						
79	m.	33	R.	Severe injury to knee.	5	Paresthesia, area of anesthesia; retardation of sensation of cold. Knee jerks normal.
80	m.	36	R.	Malarial infection.	?	Pain severe enough to oblige patient to rest. Anesthesia on antero-external surface of thigh. Knee jerks normal.
81	m.	61	L.	Soft chancres, no evidence of syphilis, paresis.	?	Rapidly fatigued by walking. Area of anesthesia. Retardation of sensation of cold. Knee jerks diminished.
Florand.						
82	m.*	?	Bil.	Obesity, rheumatism.	10	Prolonged standing causes intolerable pain. Disappeared as a result of treatment for the obesity.
Le Gendre.						
83	m.	?	R.	Injury, gout.	20	Paroxysmal attacks. Area of anesthesia. Paresthesia in other parts of the body.
Dalché.						
84	f.	35	R.	Pregnancy.	4 mo.	Hypesthesia. Cured by delivery.
Rapin.						
85	m.*	62	R.	?	25	Paresthetic and anesthetic region does not show goose flesh upon applications of cold.
Féré.						
86	m.	52	?	Father alcoholic, epileptic; arrested development by typhoid fever. Repeated attacks of herpes preputialis.	?	Attacks of meralgia during the herpetic eruptions. Hyperesthesia, pain limited to anterior region of thigh.

	Sex.	Age.	Side.	Cause.	Duration.	Remarks.
Cora.						
87	m.*	50	R.	Sunstroke, sciatica.	7 mo.	Hypesthesia to all forms of sensation, loss of power; paresthesia, worse in a warm bed.
Venturi.						
88	m.	44	R.	Syphilitic, at time of infection 20 years ago, had sensation of moisture on inner side of thigh.	3	Slight tactile hypesthesia only.
89	m.	62	R.	Corpulent.	20	Sensation of cold after long sitting; no disturbance of sensation.
Musser & Sailer.						
90	m.	28	Bil.	Typhoid fever, catarrhal jaundice, erysipelas, possibly traumatism.	1	Complete cure, paresthesia. All sensation diminished. Tender nerve trunks.
91	m.	30	R.	Gouty diathesis. Hereditary influence.	3	All forms of sensation diminished, including electro-cutaneous. Nerve trunks not tender.
92	m.	76	L.	Gout and eczema.	16	Hyperesthesia. Worse by exercise or stormy weather.
93	f.	41	Bil.	Gouty and neurotic diathesis.		Attacks coming on during menstruation.
94	f.	24	L.	Pregnancy.	2	Paresthesia and hyperalgesia to pressure.
95	f.	22	L.	Successive attacks of eczema. Rheumatism. Hereditary influence.	2	The attack commenced suddenly and left persistent numbness.
96	f.	23	Bil.	Parturition and menstruation.	3	No disturbance of sensation.
97	m.	50	R.	Walking, exposure to cold.	4	Complete anesthesia and analgesia, with smaller area in left leg. Nerve trunks not tender in left leg.
98	m.*	60	R.	Influenza.	7	Sensation of moisture.
99	m.	55	L.	Typhoid pneumonia.	13	Hypalgesia on external and lower anterior third of the thigh. Tactile sensation normal.

The analysis of the statistics in the accompanying table gives the following results: In regard to the age, it is not given in 16 cases; in 2 it is stated that the patients were young. Between the years of 10 and 20, there was 1 case; between 20 and 30, 11 cases; between 30 and 40, 19 cases; between 40 and 50, 20 cases; between 50 and 60, 18 cases; between 60 and 70, 9 cases, and above 70, 2 cases. It must be noted that the age in all cases is that of the time of observation, and in many instances the disease commenced many years before. It appears that the disease apparently is far more frequent between the ages of 30 and 60, although the statistics of our own cases are not in accordance with this. In regard to the sex, there were 75 males, 21 females, and in 3 it was not given. Again our results are in slight disaccord with those of the majority of observers. The distribution of the symptoms in regard to the side is as follows: Not given, 16; on the right thigh only, 32; on the left thigh only, 31; bilateral, 20. The duration of the disease cannot be satisfactorily determined from the above tables. The majority of cases were reported before any improvement had taken place. In some cases the symptoms recurred at long intervals, and in many, the disease commenced insidiously, and it could not be determined how long it had existed. The etiology is not given with entire satisfaction. In many instances it is possible that the patient withheld important data, and some of the cases were simply reported on account of their symptomatology. The following points, however, can be determined: in all cases, including our own—injury is mentioned 19 times, syphilis 10 times, alcoholism 8 times, typhoid fever 8 times, and other infectious processes 8 times. Pregnancy appears to have been responsible for the development of the symptoms in 6 cases. Other nervous conditions were present in 11 cases, including 2 cases of locomotor ataxia. Among the less frequent causes were cold douches in 3 instances, obesity in 2, direct inheritance in 2, lead-poisoning in 1, exposure to heat in 1, and exposure to cold in 7. Gout and rheumatism were stated to have been present in 12 cases. Ten of the patients were physicians, an unduly large proportion, that is possibly to be explained by their more careful observance of their symptoms.

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* Physician,

R—right side. L—left side. Bil.—both sides. The numerals in the fifth column refer to years, unless otherwise stated.

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2. ON SOME CASES OF PARALYSIS OF THE SERRATUS MAGNUS. Robert Jones, and G. P. Newboldt (The Liverpool Medico-Chirurgical Journal, 37, July, 1899, p. 482).

Paralysis of the serratus magnus does not occur very frequently. The writers of this article, after reviewing the anatomy, nerve supply, and actions of this muscle, present five cases of its paralysis. The most common cause of the paralysis, as reported by various observers, which are cited, is trauma in the neck to the posterior thoracic nerve. There have been cases due to a strain of the arm, to severe muscular effort, to long continued exertion, to carrying heavy weights upon the shoulder, and also to a neuritis following parturition, the neuritis excited probably by the muscular exertion or perhaps by an exposure of the neck to cold during the labor. In one case the nerve was imbedded in indurated tissue accompanying some inflamed cervical glands. Cases are recorded in which it followed typhoid fever. It may come on after gunshot wounds, and tumors in the neck may produce it by pressure on the nerve. The paralysis occurs more frequently on the right side, and between the ages of twenty and forty. It is rarely bilateral; one such case is reported as having occurred after pertussis. Males are affected more often than females. Of the five cases presented in this article, however, four were females. Two cases gave a history of injury or strain; in the third case the paralysis preceded and in the fourth followed parturition, and one case, that of the man, was probably of rheumatic origin.

In four of the five cases the right side was affected.

The three most prominent symptoms of paralysis of this muscle were found to be—inability to raise the arm above the right angle; inability to reach forward as compared with the opposite side, and the projection of the scapula as a wing, on the affected side, when the patient raises the arm and holds it directly forward. The most marked of these three symptoms, and present in all five cases, was the inability to raise the arm above a right angle. One patient complained first of his inability to reach the ink-stand when at his desk. All these cases could elevate the arm when the shoulder blade was pressed to the side. Bruns, however, cites a case of paralysis of the serratus magnus in which this symptom was absent and the arm could be elevated. The expansion of the unaffected was greater than that of the affected side, on deep inspiration with the arms raised, in the one case examined on this point. Pain was present in some of the cases. When the arms hung by the side of the body, the scapula of the affected side was slightly higher and nearer the spine than that of the sound side, and there was some obliquity of its inner border.

Rough massage and muscle beating, together with a sling to support and raise the arm and shoulder, was the treatment given.

All were improving, or had recovered, under this treatment.

The prognosis is good if treatment is begun early and persevered in, but progress is slow. Some good photographs show the projecting scapulæ and limitation of movement of the arms. BONAR.